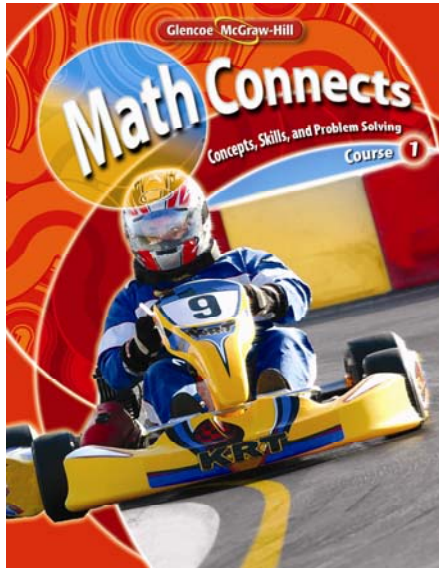




Glencoe

Academic Content Standards  
Grade Six



# Math Connects

Concepts, Skills, and Problem Solving

Course 1

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## Student Edition Correlation

| STANDARDS  | PAGE REFERENCES  |
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| <b>Number, Number Sense and Operations Standard</b>  |  |
| <i>Number and Number Systems</i>   |  |
| 1. Decompose and recompose whole numbers using factors and exponents (e.g., $32 = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$ ), and explain why “squared” means “second power” and “cubed” means “third power.”  | <b>Student Edition:</b><br>32-36, 40 #35, 46 #57, 53 #35, 64-67<br><i>Mid-Chapter Quiz</i> 41 #7-#12<br><i>Algebra Lab</i> 62 #8-#10<br><i>Study Guide and Review</i> 69 #14-#16<br><i>Practice Test</i> 73 #6   |
| 2. Find and use the prime factorization of composite numbers. For example: <ol style="list-style-type: none"> <li>Use the prime factorization to recognize the greatest common factor (GCF).</li> <li>Use the prime factorization to recognize the least common multiple (LCM).</li> <li>Apply the prime factorization to solve problems and explain solutions.</li> </ol> | <b>Student Edition:</b><br>28-31, 34 Ex. 4-6, #7-#9, 35 #26-#33, 36 #48-#52, 40 #36-#39, 198 Ex. 3, 217 Ex. 2-3, #23, 195 #8-#10, 333 #31-#34<br><i>Mid-Chapter Quiz</i> 41 #3-#6<br><i>Study Guide and Review</i> 69 #8-#13, 239 Ex. 1, 240 Ex. 7<br><i>Practice Test</i> 73 #2-#5<br><i>Test Practice</i> 74 #5, 361 #10 |
| 3. Explain why a number is referred to as being “rational,” and recognize that the expression $\frac{a}{b}$ can mean $a$ parts of size $\frac{1}{b}$ each, $a$ divided by $b$ , or the ratio of $a$ to $b$ .   | <b>Student Edition:</b><br>225-228, 229-232, 314-319, 375 #26-#29, LA2-LA6   |

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| 4. Describe what it means to find a specific percent of a number, using real-life examples.   | <b>Student Edition:</b><br>365-369, 377-380<br><i>Reading to Solve Problems</i> 376<br><i>Mid-Chapter Quiz</i> 388<br><i>Study Guide and Review</i> 407-408, 409 #46<br><i>Practice Test</i> 411 #1-#9   |
| 5. Use models and pictures to relate concepts of ratio, proportion and percent, including percents less than 1 and greater than 100.  | <b>Student Edition:</b><br>314-319, 322-327, 329-333, 334-339, 365-369<br><i>Mid-Chapter Quiz</i> 340<br><i>Study Guide and Review</i> 356-357, 407 #7-#13   |
| <i>Meaning of Operations</i>  |  |
| 6. Use the order of operations, including the use of exponents, decimals and rational numbers, to simplify numerical expressions.   | <b>Student Edition:</b><br>37-40, 42-46, 53 #34, 67 #38, 159 #31-#36<br><i>Mid-Chapter Quiz</i> 41 #13-#17<br><i>Problem-Solving Investigation</i> 55 #11<br><i>Study Guide and Review</i> 70<br><i>Practice Test</i> 73 #7-#12                                      |
| 7. Use simple expressions involving integers to represent and solve problems; e.g., if a running back loses 15 yards on the first carry but gains 8 yards on the second carry, what is the net gain/loss?           | <b>Student Edition:</b><br>37-40, 42-46, 53 #34, 577-581, 582-586, 609 #42<br><i>Problem-Solving Investigation</i> 55 #14<br><i>Mid-Chapter Quiz</i> 591 #12<br><i>Study Guide and Review</i> 621 #22, #29<br><i>Practice Test</i> 625 #5-#19                        |
| 8. Represent multiplication and division situations involving fractions and decimals with models and visual representations; e.g., show with pattern blocks what it means to take $2\frac{2}{3} \div \frac{1}{6}$ . | <b>Student Edition:</b><br>163-166, 169-172, 173-176, 179-183, 201 #44, 282-286, 287-290, 293-297, 298-301<br><i>Math Lab</i> 162, 167-168, 177-178, 280-281, 291-292<br><i>Study Guide and Review</i> 189-190, 306<br><i>Practice Test</i> 191 #16-#20, 307 #18-#25 |
| 9. Give examples of how ratios are used to represent comparisons; e.g., part-to-part, part-to-whole, whole-to-part.   | <b>Student Edition:</b><br>314-319, 322-327, 333 #29-#30, 339 #41<br><i>Math Lab</i> 320-321<br><i>Graphing Calculator Lab</i> 328<br><i>Mid-Chapter Quiz</i> 340 #1-#7<br><i>Study Guide and Review</i> 356<br><i>Practice Test</i> 359 #1-#7                       |

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| <p>10. Recognize that a quotient may be larger than the dividend when the divisor is a fraction; e.g., <math>6 \div \frac{1}{2} = 12</math>.</p>   | <p><b>Student Edition:</b><br/>           293-297, 298-301, 319 #34-#37, 327 #25-#27<br/> <i>Math Lab</i> 291-292<br/> <i>Study Guide and Review</i> 306 #60-#66<br/> <i>Practice Test</i> 307 #22-#25</p>   |
| <p><i>Computation and Estimation</i></p>   |  |
| <p>11. Perform fraction and decimal computations and justify their solutions; e.g., using manipulatives, diagrams, mathematical reasoning.</p>   | <p><b>Student Edition:</b><br/>           156-160, 163-166, 169-172, 173-176, 179-183, 256-260, 263-268, 270-274, 282-286, 287-290<br/> <i>Math Lab</i> 155, 162, 167-168, 177-178, 261-262, 280-281, 291-292, 293-297, 298-301<br/> <i>Reading to Solve Problems</i> 269<br/> <i>Study Guide and Review</i> 300-306<br/> <i>Practice Test</i> 307</p>   |
| <p>12. Develop and analyze algorithms for computing with fractions and decimals, and demonstrate fluency in their use.</p>   | <p><b>Student Edition:</b><br/>           156-160, 163-166, 169-172, 173-176, 179-183, 256-260, 263-268, 270-274, 282-286, 287-290<br/> <i>Math Lab</i> 155, 162, 167-168, 177-178, 261-262, 280-281, 291-292, 293-297, 298-301<br/> <i>Reading to Solve Problems</i> 269<br/> <i>Study Guide and Review</i> 300-306<br/> <i>Practice Test</i> 307</p>   |
| <p>13. Estimate reasonable solutions to problem situations involving fractions and decimals; e.g., <math>\frac{7}{8} + \frac{12}{13} \approx 2</math> and <math>4.23 \times 5.8 \approx 25</math>.</p> | <p><b>Student Edition:</b><br/>           150-154, 156-158 Ex. 1-5, 163 Ex. 1-2, 166 #51, 169 Ex 1-4, 173 Ex. 1-3, 179 Ex.1, 249-253, 276-279, 283 Ex. 2-4, 286 #50-#53, 287 Ex. 1, 298-299 Ex. 1, 3<br/> <i>Study Guide and Review</i> 303-305</p>  |
| <p>14. Use proportional reasoning, ratios and percents to represent problem situations and determine the reasonableness of solutions.</p>  | <p><b>Student Edition:</b><br/>           314-319, 322-327, 329-333, 334-339, 349-353, 365-369, 394-398, 401-405<br/> <i>Math Lab</i> 320-321<br/> <i>Graphing Calculator Lab</i> 328, 354<br/> <i>Mid-Chapter Quiz</i> 340<br/> <i>Study Guide and Review</i> 355-358, 407-410<br/> <i>Practice Test</i> 359<br/> <i>Test Practice</i> 360 #1, #2<br/> <i>Problem-Solving Investigation</i> 399-400</p> |

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| <p>15. Determine the percent of a number and solve related problems; e.g., find the percent markdown if the original price was \$140, and the sale price is \$100.</p>  | <p><b>Student Edition:</b><br/>401-405<br/><i>Problem-Solving Investigation</i> 399-400<br/><i>Study Guide and Review</i> 410 #47-#55<br/><i>Practice Test</i> 411 #22-#25</p>   |
| <p><b>Measurement Standard</b></p>  |  |
| <p><i>Measurement Units</i></p>   |  |
| <p>1. Understand and describe the difference between surface area and volume.</p>   | <p><b>Student Edition:</b><br/>548-553, 555-559, LA20-LA24<br/><i>Geometry Lab</i> 554<br/><i>Study Guide and Review</i> 564 #32-#37<br/><i>Practice Test</i> 565 #11-#16</p>  |
| <p><i>Use Measurement Techniques and Tools</i></p>  |  |
| <p>2. Use strategies to develop formulas for finding circumference and area of circles, and to determine the area of sectors; e.g., <math>\frac{1}{2}</math> circle, <math>\frac{2}{3}</math> circle, <math>\frac{1}{3}</math> circle, <math>\frac{1}{4}</math> circle.</p>   | <p><b>Student Edition:</b><br/>528-533, 538 #26-#28, 544 #31, LA15-LA19<br/><i>Measurement Lab</i> 527<br/><i>Mid-Chapter Quiz</i> 545 #4-#11<br/><i>Study Guide and Review</i> 562 #11-#19<br/><i>Practice Test</i> 565 #3-#5</p>   |
| <p>3. Estimate perimeter or circumference and area for circles, triangles and quadrilaterals, and surface area and volume for prisms and cylinders by:</p> <ol style="list-style-type: none"> <li>estimating lengths using string or links, areas using tiles or grid, and volumes using cubes;</li> <li>measuring attributes (diameter, side lengths, or heights) and using established formulas for circles, triangles, rectangles, parallelograms and rectangular prisms.</li> </ol> | <p><b>Student Edition:</b><br/>63-67, 522-526, 528-533, 534-538, 540-544, 548-553, 555-559, LA15-LA19, LA20-LA24<br/><i>Measurement Lab</i> 527, 539, 560<br/><i>Mid-Chapter Quiz</i> 545<br/><i>Geometry Lab</i> 554<br/><i>Study Guide and Review</i> 561-564<br/><i>Practice Test</i> 565</p> |
| <p>4. Determine which measure (perimeter, area, surface area, volume) matches the context for a problem situation; e.g., perimeter is the context for fencing a garden, surface area is the context for painting a room.</p>  | <p><b>Student Edition:</b><br/>63-67, 522-526, 528-533, 534-538, 540-544, 548-553, 555-559, LA15-LA19, LA20-LA24<br/><i>Measurement Lab</i> 527, 539, 560<br/><i>Mid-Chapter Quiz</i> 545<br/><i>Geometry Lab</i> 554<br/><i>Study Guide and Review</i> 561-564<br/><i>Practice Test</i> 565</p> |

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| 5. Understand the difference between perimeter and area, and demonstrate that two shapes may have the same perimeter, but different areas or may have the same area, but different perimeters.               | <b>Student Edition:</b><br>522-526, 528-533, 534-538, 540-544<br><i>Mid-Chapter Quiz</i> 545<br><i>Problem-Solving Investigation</i> 547 #3-#4<br><i>Measurement Lab</i> 560                                    |
| 6. Describe what happens to the perimeter and area of a two-dimensional shape when the measurements of the shape are changed; e.g. length of sides are doubled.  | <b>Student Edition:</b><br>522-526, 528-533, 534-538, 540-544<br><i>Mid-Chapter Quiz</i> 545<br><i>Problem-Solving Investigation</i> 547 #3-#4<br><i>Measurement Lab</i> 560                                    |
| <b>Geometry and Spatial Sense Standard</b>   |   |
| <i>Characteristics and Properties</i>  |   |
| 1. Classify and describe two-dimensional and three-dimensional geometric figures and objects by using their properties; e.g., interior angle measures, perpendicular/parallel sides, congruent angles/sides. | <b>Student Edition:</b><br>488-491, 494-499, 502-507<br><i>Geometry Lab</i> 485, 493, 508<br><i>Mid-Chapter Quiz</i> 492 #13-#15<br><i>Study Guide and Review</i> 512-514<br><i>Practice Test</i> 515 #8-#16    |
| 2. Use standard language to define geometric vocabulary: vertex, face, altitude, diagonal, isosceles, equilateral, acute, obtuse and other vocabulary as appropriate.  | <b>Student Edition:</b><br>470-473, 479-483, 486-491, 494-499, 502-507<br><i>Geometry Lab</i> 485, 493, 508<br><i>Mid-Chapter Quiz</i> 492<br><i>Study Guide and Review</i> 509-514<br><i>Practice Test</i> 515 |
| 3. Use multiple classification criteria to classify triangles; e.g., right scalene triangle.   | <b>Student Edition:</b><br>486-491, 502-507<br><i>Geometry Lab</i> 485<br><i>Mid-Chapter Quiz</i> 492 #13<br><i>Study Guide and Review</i> 512<br><i>Practice Test</i> 515 #8                                   |
| 4. Identify and define relationships between planes; i.e., parallel, perpendicular and intersecting.   | <b>Student Edition:</b><br>479-484, 495, LA10-LA14  |

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| <i>Spatial Relationships</i>   |  |
| 5. Predict and describe sizes, positions and orientations of two-dimensional shapes after transformations such as reflections, rotations, translations and dilations.  | <b>Student Edition:</b><br>604-609, 610-614, 615-619<br><i>Study Guide and Review</i> 623-624<br><i>Practice Test</i> 625 #28-#33<br><i>Test Practice</i> 627 #12  |
| <i>Transformations and Symmetry</i>  |  |
| 6. Draw similar figures that model proportional relationships; e.g., model similar figures with a 1 to 2 relationship by sketching two of the same figure, one with corresponding sides twice the length of the other. | <b>Student Edition:</b><br>502-507<br><i>Study Guide and Review</i> 514<br><i>Practice Test</i> 515 #28-#33<br><i>Test Practice</i> 517 #12  |
| <i>Visualization and Geometric Models</i>  |  |
| 7. Build three-dimensional objects with cubes, and sketch the two-dimensional representations of each side; i.e., projection sets.   | <b>Student Edition:</b><br>559 #30<br><i>Geometry Lab</i> 554  |
| <b>Patterns, Functions and Algebra Standard</b>  |  |
| <i>Use Patterns, Relations and Functions</i>   |  |
| 1. Represent and analyze patterns, rules and functions, using physical materials, tables and graphs.   | <b>Student Edition:</b><br>49-53, 60 #41, 67 #36-#37, 343-348<br><i>Graphing Calculator Lab</i> 47-48<br><i>Problem-Solving Investigation</i> 55 #10, #12, 341-342, 662 #7, #9<br><i>Study Guide and Review</i> 71, 357-358<br><i>Practice Test</i> 73 #13-#15 |
| 2. Use words and symbols to describe numerical and geometric patterns, rules and functions.  | <b>Student Edition:</b><br>49-53, 60 #41, 67 #36-#37, 343-348<br><i>Graphing Calculator Lab</i> 47-48<br><i>Problem-Solving Investigation</i> 55 #10, #12, 341-342, 662 #7, #9<br><i>Study Guide and Review</i> 71, 357-358<br><i>Practice Test</i> 73 #13-#15 |

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| <i>Use Algebraic Representations</i>   |   |
| 3. Recognize and generate equivalent forms of algebraic expressions, and explain how the commutative, associative and distributive properties can be used to generate equivalent forms; e.g., perimeter as $2(l + w)$ or $2l + 2w$ . | <b>Student Edition:</b><br>632-635, 636-641, 648 #37<br><i>Algebra Lab</i> 630-631<br><i>Mid-Chapter Quiz</i> 649 #1-#19<br><i>Study Guide and Review</i> 664<br><i>Practice Test</i> 667 #1-#11, #16<br><i>Test Practice</i> 668 #4                                      |
| 4. Solve simple linear equations and inequalities using physical models, paper and pencil, tables and graphs.  | <b>Student Edition:</b><br>57-60, 67 #33-#37, 349-353, 644-648, 651-654, 657-660, 749-750<br><i>Study Guide and Review</i> 71-72, 358, 665-666<br><i>Graphing Calculator Lab</i> 354<br><i>Algebra Lab</i> 642-643, 650, 655-656<br><i>Mid-Chapter Quiz</i> 649 #20-#25   |
| 5. Produce and interpret graphs that represent the relationship between two variables.   | <b>Student Edition:</b><br>233-237, 253 #44<br><i>Study Guide and Review</i> 242 #67<br><i>Practice Test</i> 243 #21  |
| 6. Evaluate simple expressions by replacing variables with given values, and use formulas in problem-solving situations.   | <b>Student Edition:</b><br>42-46, 53 #31-33, 60 #42-44, 63-67, 343-348, 636-641, 648 #36, 654 #39<br><i>Algebra Lab</i> 61<br><i>Study Guide and Review</i> 70-72, 664 #18-#28<br><i>Practice Test</i> 73 #9-#11, #19-#20, 359 #17<br><i>Mid-Chapter Quiz</i> 649 #11-#19 |
| <i>Analyze Change</i>  |   |
| 7. Identify and describe situations with constant or varying rates of change, and compare them.  | <b>Student Edition:</b><br>314-319, 322-327, 339 #41  |
| 8. Use technology to analyze change; e.g., use computer applications or graphing calculators to display and interpret rate of change.  | <b>Student Edition:</b><br><i>Graphing Calculator Lab</i> 328   |

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| <b>Data Analysis and Probability Standard</b>  |   |
| <i>Data Collection</i>   |   |
| 1. Read, construct and interpret line graphs, circle graphs and histograms.  | <b>Student Edition:</b><br>81-85, 88-91, 100 #26-#27, 118 #23-#24, 370-375, 377, 380 #44, 386 #42, LA25-LA28<br><i>Spreadsheet Lab</i> 86-87<br><i>Mid-Chapter Quiz</i> 101 #4, 388 #8-#10<br><i>Study Guide and Review</i> 407<br><i>Practice Test</i> 411 #8-#9 |
| 2. Select, create and use graphical representations that are appropriate for the type of data collected.   | <b>Student Edition:</b><br>114-118, 125 #38<br><i>Statistics Lab</i> 119<br><i>Study Guide and Review</i> 130 #29-#32<br><i>Practice Test</i> 131 #12-#13   |
| 3. Compare representations of the same data in different types of graphs, such as a bar graph and circle graph.  | <b>Student Edition:</b><br>114-118<br><i>Spreadsheet Lab</i> 86-87<br><i>Study Guide and Review</i> 130 Ex 8  |
| <i>Statistical Methods</i>   |   |
| 4. Understand the different information provided by measures of center (mean, mode and median) and measures of spread (range).   | <b>Student Edition:</b><br>102-106, 108-113, 118 #20-#22, 125 #39-#40<br><i>Spreadsheet Lab</i> 107<br><i>Study Guide and Review</i> 129 #23-#28<br><i>Practice Test</i> 131 #10-#11  |
| 5. Describe the frequency distribution of a set of data, as shown in a histogram or frequency table, by general appearance or shape; e.g., number of modes, middle of data, level of symmetry, outliers. | <b>Student Edition:</b><br>81-85, 96-100, 102-106, 108-113, LA25-LA28, 757-758<br><i>Problem-Solving Investigation</i> 78-79<br><i>Mid-Chapter Quiz</i> 101 #1  |
| 6. Make logical inferences from statistical data.  | <b>Student Edition:</b><br>81-85, 88-91, 102-106, 108-113<br><i>Statistics Lab</i> 119  |

**STANDARDS****PAGE REFERENCES***Probability*

7. Design an experiment to test a theoretical probability and explain how the results may vary.

**Student Edition:**

381-386, 389-393, 759-760

*Probability Lab* 387

*Mid-Chapter Quiz* 388, #20-#24

*Study Guide and Review* 408-409

*Practice Test* 411 #13-#21